

**REMARKS**

Claims 9-15 are rejected, and claims 1-8 and 16-22 are withdrawn from consideration as being directed to a non-elected invention. Review and reconsideration on the merits are requested.

Claims 9 and 12-14 were rejected under 35 U.S.C. § 102(b) as anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over U.S. Patent 6,150,426 to Curtin et al.

Curtin et al was cited as disclosing copolymers of tetrafluoroethylene (TFE) and a perfluorinated vinyl ether  $\text{CF}_2=\text{CF}-\text{O}-\text{CF}_2\text{CF}_2\text{SO}_2\text{F}$  (B). Although acknowledging that Curtin et al does not teach the ratio of IR peaks as recited in claim 1, because the polymers disclosed by Curtin et al do not have carboxyl groups, the Examiner considered that the intensity ratio between the carboxyl group IR peak and the  $\text{CF}_2$  IR peak would be 0 (citing col. 6, lines 49-65 and col. 12, lines 43-50). Alternatively, the Examiner considered that the claimed ratio of IR peaks would obviously have been present in the fluoropolymer of Curtin et al.

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

In accordance with the method for producing a stabilized fluoropolymer of the invention, a treatment target substance containing a sulfonic-acid-derived-group-containing fluoropolymer is subjected to fluorination treatment, which treatment target substance has a moisture content of not higher than 500 ppm by mass (see claim 1). More particularly, in a stabilized fluoropolymer B of the invention (i.e., a stabilized fluoropolymer obtained via polymerization of an acid-derived-group-containing perhalovinyl ether represented by general formula (II) and TFE), the stabilized fluoropolymer shows an intensity ratio  $[\text{x/y}]$  between the carboxyl group-due peak  $[\text{x}]$  and the  $-\text{CF}_2-$  group-due peak  $[\text{y}]$  of not higher than 0.05 in an IR measurement. That is, in the

stabilized fluoropolymer B, the carboxyl groups [-COOH] are formed mainly as polymer chain terminal groups, and the -CF<sub>2</sub>- groups occur mainly in the polymer main chain (specification bridging pages 20-21).

Thus, Applicants respectfully disagree that the polymers taught by Curtin et al would not have carboxyl groups.

As noted above, the stabilized fluoropolymer of claim 9 shows an intensity ratio [x/y] between carboxyl group-due peak [x] and -CF<sub>2</sub>- due peak [y] of not higher than 0.05 in IR measurement. Thus, the present invention exhibits high stability. The following data is taken from the working examples of the specification. Stability testing with Fenton's reagent is described bridging pages 41-42 of the specification.

	[x/y]	Decoloration	Fenton
Example 1	0.03	-	5 ppm
Example 2	0.03	-	5 ppm
Example 4	N.D.		5 ppm
Comp. Ex. 1	0.14	+	
Comp. Ex. 2			20 ppm

Notably, in Example 1, the fluoropolymer A was dried to a moisture content of 200 ppm by mass and then subjected to fluorination treatment to obtain stabilized fluoropolymer B. In Comparative Example 1, the fluoropolymer A obtained in Example 1 was allowed to stand in the air for two (2) days and the moisture content was then measured and found to be 700 ppm. This polymer was fluorinated in the same manner as in Example 1 to give a fluoropolymer C. As shown in the Table above, the [x/y] intensity ratio of Comparative Example 1 was nearly five (5) times greater than that of the *stabilized* fluoropolymer of Example 1. Thus, simply preparing a

copolymer of tetrafluoroethylene (TFE) and a perfluorinated vinyl ether as disclosed by Curtin et al in no manner is a disclosure of a stabilized fluoropolymer of claim 9 having an intensity ratio  $[x/y]$  of not higher than 0.05 in IR measurement.

Curtin et al discloses “the solid compositions, including the compositions obtained upon drying preferred liquid compositions in accordance with the invention, are preferably substantially free of components containing carbonyl bonds as determined by reflectance infrared spectroscopy.” (Col. 6, lines 49-53). That is, Curtin et al does not disclose a stabilized fluoropolymer (as required by present claim 9), and also does not consider or examine stability or instability of end groups.

For the above reasons, it is respectfully submitted that claims 9 and 12-14 are neither anticipated nor obvious over Curtin et al, and withdrawal of the foregoing rejection is respectfully requested.

Claims 10 and 11 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Curtin et al in view of U.S. Patent 3,085,083 to Schreyer. The reason for rejection was that it would have been obvious to modify the fluoropolymer of Curtin et al with the number of fluorinated methyl end-groups as taught by Schreyer because Curtin et al was said to teach both fluorinated polymers with no C-H bonds and low equivalent weights whereas Schreyer was said to teach that additional fluorinated methyl end-groups add stability to give improved corrosion resistance.

Applicants traverse, and respectfully request the Examiner to reconsider for the following reasons.

In a hydrolyzate of the stabilized fluoropolymer of claim 10, the number [X] of main chain terminal  $\text{-CF}_3$  groups per  $1 \times 10^5$  main chain carbon atoms of the hydrolyzate is not smaller than 10.

On the other hand, neither Curtin et al nor Schreyer discloses stabilized fluoropolymers having the end groups of  $\text{-CF}_3$ .

Curtin et al discloses "Polymers for use in accordance with the present invention are highly fluorinated ion-exchange polymers having sulfonate functional groups. 'Highly fluorinated' means that at least 90% of the total number of halogen and hydrogen atoms in the polymer are fluorine atoms." (col. 3, lines 49-51.)

Curtin et al also disclose "Preferred compositions in accordance with the invention are also free of C-H bonds, i.e., no bands  $2800\text{-}3000\text{ cm}^{-1}$  occur in reflectance infrared spectroscopy, unless they are present in the polymer molecule, e.g., unfluorinated sites or quaternary amine cation associated with the  $\text{-SO}_3\text{-}$  group." (Col. 6, lines 60-65.)

Namely, Curtin et al discloses a (per) fluoropolymer substituted -  $\text{CF}_2\text{-}$  for  $\text{-CH}_2\text{-}$  in the main chain.

Schreyer only discloses a fluoropolymer having the end groups of  $\text{-CF}_2\text{H}$ .

Thus, the combination of Curtin et al and Schreyer does not disclose all of the limitations of claim 10 and therefore does not teach the invention of claim 10. Withdrawal of the foregoing rejection under 35 U.S.C. § 103(a) is respectfully requested.

Claim 15 was rejected under 35 U.S.C. § 103(a) as being unpatentable over Curtin et al in view of WO 02/096983 A1.

Applicants rely on the response above with respect to the rejection of claims 9 and 12-14 over Curtin et al alone. WO '983 does not make up for the deficiencies of Curtin et al.

Withdrawal of all rejections and allowance of claims 9-15 is earnestly solicited.

In the event that the Examiner believes that it may be helpful to advance the prosecution of this application, the Examiner is invited to contact the undersigned at the local Washington, D.C. telephone number indicated below.

The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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